ERD

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November 21, 2003

Mr. David Bright
Planning Manager
Blueprint 2000 Intergovernmental Agency
Koger Center - Ellis Building
1311 Executive Center Drive, Suite 109
Tallahassee, FL 32301

RE: Review of Blueprint 2000 Stormwater Quality Enhancement Project - Killearn Lakes Septic to Sewer Project

Dear Mr. Bright:

Environmental Research & Design, Inc. (ERD) has completed an initial review of the Killearn Lakes Septic to Sewer Project information provided by Leon County. The project was evaluated using the criteria developed by ERD and amended by the Blueprint 2000 Technical Advisory Committee. The evaluation was based on a review of the following documents provided by Leon County:

1. Letter dated October 24, 2003 from Teresa Heiker to Jim Davis
2. Map of existing septic tank locations in Killearn Lakes Units 1 and 2
3. Map of existing septic tank locations in the vicinity of Lake Tom John
4. Copy of Section 4.1.1 - "Hydrologic Characteristics of Sub-basin Areas" from the Bradfordville Stormwater Study dated May 2000
5. Florida LAKEWATCH data for Lake Arrowhead during 1999, 2000, 2001, and 2002
6. Florida LAKEWATCH data for Lake Blue Heron during 1999, 2000, 2001, and 2002
7. Florida LAKEWATCH data for Lake Monkey Business during 1999, 2000, 2001, and 2002
8. Florida LAKEWATCH data for Lake Petty Gulf during 1999

13

9. Cover page, Table 1, and Figure 27 from the Lester Cove Study dated 1997 and 1999

10. Lake Iamonia maps and data from the Leon County Lakes Ecology 2002 Annual Report

11. Report titled "Effects of Septic Systems in the Lake Jackson Watershed - Northwest Florida Water Management District" dated November 2000

The Blueprint 2000 and Beyond Project Definitions Report dated February 7, 2000 provides a Program Summary for the Stormwater Quality Enhancement Program and Regional Ponds element. Under program description, the summary states that while some retrofit facilities are specifically identified in the recommended project sections, others are needed to prevent flooding and treat runoff from past development. It further states that pollutant problems should be defined and quantified on a watershed basis to obtain quantifiable data on the location and relative magnitude of pollution problems. Projects should be constructed at key locations based on an analysis of pollutant loading, sensitivity of the receiving waterbodies, pollutant removal effectiveness, and facility cost. From the Blueprint 2000 Program Summary for the Stormwater Quality Enhancement Program and Regional Ponds, ERD developed specific review criteria to evaluate candidate projects. Although not a stormwater retrofit project, it is ERD's opinion that projects such as the Killearn Lakes Septic to Sewer Project should be considered for Blueprint 2000 funding if the project meets the established Blueprint 2000 criteria.

In Item 2b, the County indicates that the proposed sewer improvements are to reduce the nutrient enrichment of Lake Iamonia and its tributary, Lester Creek, as a result of failing septic tanks in Killearn Lakes Units 1 and 2. The County also states that the surface waters in the Killearn Lakes Subdivision are displaying elevated nutrient and bacteria levels which must be addressed to ensure Lake Iamonia is protected from contamination. The impact of failing septic tanks on surface water quality is directly related to the quantity of shallow groundwater draining from the septic tank vicinity to the receiving water and the concentration of pollutants in the shallow groundwater. During completion of the Bradfordville Stormwater Study, ERD installed groundwater seepage meters in Lake Arrowhead, Gilbert Pond, Lake McBride, and Lake Tom John. From July-December 1999, seepage into these four lakes accounted for approximately 9% of the total water volume reaching the lakes on an average basis. Also during this time, seepage into the lakes accounted for approximately 3% of the total phosphorus inputs. This indicates that during the study period, seepage inflows were not a major contributor of water volume or phosphorus loads to these four lakes. This data is provided for general information only. Shallow groundwater seepage may be a major source of pollution to lakes within Killearn Lakes Units 1 and 2. Septic tank densities in Killearn Lakes Units 1 and 2 are significantly higher than adjacent to the four lakes evaluated in the Bradfordville Stormwater Study. Also, rainfall was well below average during the study period.

Elevated total and fecal coliform counts in surface waters can be a result of shallow groundwater discharges, stormwater runoff discharges and/or direct inputs from waterfowl. The County provided single-event LAKEWATCH data which indicated elevated total and fecal coliform values in several lakes. This could be a result of any single source or a combination of sources.

In order for ERD to complete the evaluation of this project, the County needs to provide all of the information outlined in the Criteria for Review. Specifically, the following items need to be provided:

1. Quantify existing pollutant loadings from the failing septic tanks in the project contributing area

2. Estimate the reduction in pollutant loadings to Lake Iamonia as a result of constructing central sewers

3. Compare the importance of reducing pollutant loadings from septic tanks relative to treating other pollutant loadings in the watershed

4. Demonstrate that the project provides cost-effective long-term pollutant load reduction in the watershed

Once the additional information is received from the County, ERD will complete the evaluation of the Killearn Lakes Septic to Sewer Project. Please give me a call if you have any questions or comments.

Sincerely,

Jeffrey L. Herr, P.E.
Vice President - Engineering

JLH:shd
Project No. 02-006

cc: Theresa Heiker, P.E.
Chief, Stormwater Engineering
Leon County Public Works
2280 Miccosukee Road
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